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Process Costs

By W. H. STALKER

(Before the South Wales and Monmouthshire Chartered Accountants Students' Society, October 19, 1936. Reprinted from The Accountant.)

MAY I at the very outset express my opinion that "Costing" is a most important branch of accountancy and one to which the student should devote his attention immediately after he has fully mastered the principles of double-entry bookkeeping. It forms nowadays an essential part of the professional examinations. Not only so—the young man who is preparing to become a qualified accountant will find that there is an ever-increasing demand for the services of qualified men to act as cost accountants in large industrial concerns and also in local government departments.

On referring to Dicksee's well-known manual on "Auditing" I came across the following paragraph:—

"Every system of accounting worthy of the name that purports to record the transactions of a manufacturer will provide some method of ascertaining the cost of the articles produced, while many systems recording transactions of a purely trading nature (i.e. buying and selling only) will likewise find a proper system of costing most advantageous. The fact remains, however, that cost accounts as now arranged are often unsystematic, unreliable and unaudited, and this statement is as literally true today as it was when the first edition of this work was published. The matter has, perhaps, little to do with auditing in the ordinary sense of the term, but when cost accounts exist the auditors will find them most useful as vouchers."

Thus wrote Professor Dicksee in the year 1924 and his criticism of cost accounting was all too true. It is pleasing to state that since 1924 there has been a decided improvement and that there are now a great many concerns whose methods are systematic and reliable and in some instances their cost accounts are audited.

There are, however, other firms whose costing methods and organisation leave much to be desired.

As many of those present here this evening will no doubt be studying for their examinations, I have borne this fact in mind, and my endeavour will be to treat my theme in a simple form and in such a way as will, I trust, help them in answering costing questions satisfactorily and also stimulate them to take an intense interest in this fascinating subject.

PROCESS COSTS

Mechanical Aids For Detail

In these days of keen competition it is obvious that manufacturing concerns must employ some means of mechanical aid in the office if the costs are to be presented to the departmental managers in such a way that excessive expenditure in any part of the process can be readily and promptly detected.

It is a mistake to assume that works managers and departmental managers are there simply to get the work done and to increase the production.

It is their responsibility to get the work done with a minimum of cost and they can only do this if sufficiently detailed costs are forthcoming from the costing department.

Too much emphasis cannot be laid on the words "sufficiently detailed costs" because the departmental managers who do not work in close collaboration with the cost accountant can never hope to get their costs submitted in such a way that leakages can be detected.

Very few cost accountants can be expected to have a thorough technical knowledge of the processes upon the costing of which they are engaged, but they ought to make themselves as familiar as possible with the various operations involved so that they may possess at least a semi-technical knowledge. The cost accountant should be able to submit the costs as and when required by the technical staff and in the most scientific manner.

In order to provide the data promptly, the use of mechanical means is absolutely necessary.

It is not my intention this evening to deal fully with mechanical accounting as it is a subject which to do it justice would require a separate lecture.

Suffice to say that valuable assistance may be obtained from the use of such machines as:—

Hollerith, Powers Samas, Burroughs and Remington—ledger posting machines, and various adding and calculating machines. The nature of the work carried on and the volume of data to be dealt with are the factors which will govern the choice of suitable appliances having regard to the specific requirements of each particular case.

Classes or Groups

Costing is divided into various classes or groups such as:—

Job or Terminal costs, Multiple costs, Single costs, Operation costs and Process costs.

The method most suitable for any particular industry is decided by the nature of the manufacture and the lines of organisation in operation.

Briefly the following may be taken as a guide to classification:—

Job costing (or, as it is sometimes called, terminal costing) is, as its name implies, applicable where the cost is required of a particular

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job or contract, such as obtains in the shipbuilding, engineering and building trades, &c. Under this method the amount expended on labour and materials, together with its share of overhead expenses, is charged to a particular order number, and the sum total constitutes the cost of the job or contract.

Multiple costing is the system most generally used where the product is manufactured by mass production methods, e.g. engineering specialities, electrical apparatus, motor cars, &c.

Single costing is the term used to denote the method employed in businesses supplying one rather than a great number of products, and particularly where it is desired to find the actual or average cost of one unit, weight, measurement or container per ton, per yard, per thousand bricks or per sack of flour.

Operation costing is the method usually employed where services are rendered rather than goods produced and is found in the case of railway, tramway and motor transport companies, and also such public utility concerns as waterworks, gas and electricity companies, &c.

Process costing is used in those cases where there is a variety of processes or operations before a completed product is turned out and where it is desired to find the cost of each separate operation. This method is particularly suitable where by-products occur or where one article out of a batch loses its identity during the process of manufacture. By this method comparison of the costs of different operations is possible and prices at each stage can be fixed.

Process Costing

Process costing is used in many industries and the following may be mentioned as a few examples:—

Box-making, soap-making, paint, ink and varnish-making, textiles, weaving, spinning, paper mills, chemical works, distilleries, canning factories, biscuit works, proprietary food products, sugar crystallisation, cocoa preparation and the conversion of liquids into solids and vice versa.

The special feature of process costing systems is that an account is kept for each process or operation:—

Materials, labour and expenses are debited;

By-products and waste are credited.

The material as modified at the first operation is then passed on to the next process.

If by-products should require any further treatment, the same procedure is followed.

In other words, the finished product of the first process becomes the raw material of the next one, and so on, until the final products are completed.

Each process account therefore represents a subdivision of a manufacturing account, so that the works cost of each process is separately

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ascertained, and from which the unit cost at each operation may be calculated.

When two or more distinct varieties of goods are manufactured, separate departmental costs are desirable, so that the profit made by each department may be revealed.

Arrangement of Accounts

The nature of the industry will determine the arrangement of the process accounts.

There are three main classes into which these accounts may be divided:

- (1) Where the raw material passes through a series of processes before completion, there being no by-products, and no need for stock accounts at intermediate stages, e.g. glass bottle works, potteries, paper mills, &c.
- (2) Where there are no by-products, but it is necessary to use a stock account for each process, or for some of the processes, e.g. engineering factories using mass production and repetition methods, cotton and wool textiles, &c.
- (3) Where by-products arise, and have to be costed, e.g. gas works, coke-oven plants, chemical works, distilleries, refineries, &c.

Quarrying

As a good example of a commodity which passes through a series of process accounts we might take carbonate of magnesia which is used in thousands of industries, particularly by manufacturers of cosmetics, tooth powders and rubber tires.

We will assume that the manufacturer owns the quarry from which is produced the raw material, limestone, and we will follow the process through the various accounts.

Account No. 1 as set out below for quarrying shows the cost of the labour in baring the ground, in boring and in quarrying the limestone.

The cost of materials is very small, being for explosives only. There are certain repairs to plant and tools and a small proportion of general expenses is also charged to this operation.

I will deal later with the basis on which overhead expenses are allocated.

The price per ton at which the limestone is transferred to No. 2 account is fixed at the commencement of each financial year, and is based on the experience of the previous completed year. It follows, therefore, that in some months the quarrying account will show a profit, in others a loss, whilst in the month given as an example the cost works out precisely to the fixed price of 4s. per ton.

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No. 1

Quarrying Account

	Cost per ton	£	s	d
To Wages—Baring	3d.	5	0	0
Boring	9d.	15	0	0
Quarrying	8d.	13	6	8
“ Materials—Explosives	4d.	6	13	4
“ Repairs	6d.	10	0	0
“ Proportion of General Expenses	1/6	30	0	0
	<hr/> 4/-	<hr/> £80	<hr/> 0	<hr/> 0
	Per ton	£	s	d
By 400 tons of Limestone transferred to No. 2 Account	4/-	80	0	0
	<hr/> 4/-	<hr/> £80	<hr/> 0	<hr/> 0

Processing

We will now pass on to Account No. 2, from which it will be observed that the second process consists of drying and grinding the limestone and the debits to this account are as follows:—

Materials.—400 tons of limestone; also a quantity of coke.

Wages paid to men in charge of the kilns and grinding machinery.

Departmental Expenses.—Repairs to plant, general expenses, electric power, gas and water, boiler service and loco haulage.

You will notice that in this process there is a wastage of 50 per cent. and the 400 tons of raw material results in only 200 tons of dried limestone to be transferred to Process No. 3.

The marginal figures show the cost per ton of output in respect of each item on the debit side, and such figures assist very materially each month in enabling the costs to be compared in detail with those of previous periods.

It will be observed that the cost of quarrying the limestone in Account No. 1 is 4s. per ton, but that on the debit side of Account No. 2 the cost of this limestone is shown at 8s. The explanation of this is that the cost per ton figures in the second account are based on the figure of 200 tons, this being the productive output of the kilning and grinding department, after allowing for the wastage of 50 per cent. in the raw material as explained above. The same point will arise later on in the price of the lime transferred from the second to the third process.

I should also mention that a valuable by-product arises from this process, viz. CO₂ which is drawn off and passed into CO₂ holders and

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sold. The amounts realised, however, in respect of this by-product are not credited to this account but are carried direct to the profit and loss account for the obvious reason that it would not pay to attempt to measure or allocate the gas to any particular batch of limestone dealt with.

A separate account is, however, kept for CO_2 , as naturally there are expenses incurred in "bottling" the gas when it is drawn from the holders.

No. 2 Lime Account (Kilning & Grinding)

	Cost per ton	£	s	d
To 400 tons of Limestone transferred from No. 1 Account	8/-	80	0	0
" Materials—Coke	12/6	125	0	0
" Wages—Kilnmen	5/11	59	3	4
Grinding	1/10	18	6	8
" Departmental Expenses	3/6	35	0	0
" Repairs	3/9	37	10	0
" Proportion of General Expenses	6/-	60	0	0
" Electric Power	2/6	25	0	0
" Gas and Water	10d.	8	6	8
" Boiler Service	4/-	40	0	0
" Loco Haulage	5d.	4	3	4
	49/3	£492	10	0
<hr/>				
	Per ton	£	s	d
By 200 tons of Lime transferred to No. 3 Account	49/3	492	10	0
	49/3	£492	10	0

A Further Stage

The operations of the third process are reflected in the Boiled Liquor Account, No. 3, the debits to which consist of:—

Materials.—200 tons of lime transferred from No. 2 account; coke.

Wages paid to men engaged on carbonators, filter house plant and magnesia cisterns.

Departmental Expenses under the various headings as already detailed in No. 2 account.

In this process 25 per cent. of the material is lost and 50 tons of waste pulp is carried to the pulp heap and is of no residual value whatever.

The 200 tons of lime results in a production of 150 tons of carbonate of magnesia which may be disposed of in two different ways—a portion

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of the output may be sent to the insulation department and the remainder passed to No. 4 process for further treatment.

It will no doubt be of interest to many of you to learn that magnesia is extensively used for heat insulation purposes with an admixture of asbestos fibre. This is largely used in connection with marine work and steam piping generally to prevent losses in heat radiation as the steam passes through the piping.

Finished Products

We now pass on to process No. 4, in which the material is drawn from the boiled liquor cisterns and proceeds for use in the manufacture of the various finished products, after the moisture has been driven off through filter presses. The first of such products consists of the rough blocks of carbonate of magnesia.

These are then machined, finished and dressed ready for being wrapped and packed as required.

A further branch of the rough block product is the manufacture of carbonate of magnesia in powder, the blocks being crushed until an exceptional degree of fineness is attained.

No. 3

Boiled Liquor Account

	Cost per ton	£	s	d
To 200 tons of Lime transferred from No. 2 Account	65/8	492	10	0
“ Materials—Coke	4/2	31	5	0
“ Wages—Carbonators	3/4	25	0	0
Filter House	4/9	35	12	6
Magnesia Cisterns	10d.	6	5	0
“ Departmental Expenses	1/8	12	10	0
“ Repairs	1/6	11	5	0
“ Proportion of General Expenses	8/4	62	10	0
“ Electric Power	20/9	155	12	6
“ Gas and Water	10d.	6	5	0
“ Boiler Service	28/4	212	10	0
“ Loco Haulage	1/4	10	0	0
	<hr/> 141/6	<hr/> £1,061	<hr/> 5	<hr/> 0
	Per ton	£	s	d
By 50 tons of Carbonate of Magnesia transferred to No. 4 Account	141/6	353	15	0
“ 100 tons of Carbonate of Magnesia transferred to insulation Account	141/6	707	10	0
“ 50 tons of Waste Pulp	—	—	—	—
	<hr/> 141/6	<hr/> £1,061	<hr/> 5	<hr/> 0

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No. 4 account therefore consists of debits as follows:—

Materials.—50 tons of carbonate of magnesia transferred from No. 3 account.

Wages.—Moulders, driers and packers.

Departmental Expenses—again similar items to those debited in Nos. 2 and 3 accounts.

The credits consist of:—30 tons of rough blocks of carbonate of magnesia transferred to finished stock; 19 tons transferred to powder account; 1 ton transferred to waste account.

The amount of waste occurring during this process is comparatively small, but nevertheless it is essential to keep track of it.

No. 4 Carbonate of Magnesia Account. Rough Blocks

	Cost per ton	£	s	d
<hr/>				
To 50 tons of Carbonate of Magnesia transferred				
“ from No. 3 Account	141/6	353	15	0
“ Wages—Moulding	23/4	58	6	8
Drying	3/6	8	15	0
Packing	16/-	40	0	0
“ Proportion of General Expenses	19/10	49	11	8
“ Electric Power	13/4	33	6	8
“ Boiler Service	46/8	116	13	4
“ Loco Haulage	14/3	35	12	6
	<hr/> 278/5	<hr/> £696	<hr/> 0	<hr/> 10
<hr/>				
	Per ton	£	s	d
By Finished Stock of Rough Blocks, 30 tons	278/5	417	12	6
“ Transfer to Powder Account, 19 tons (exclusive of packing)	278/5	264	9	11
“ Waste Account, 1 ton (ultimately absorbed in overheads)	278/5	13	18	5
	<hr/> 278/5	<hr/> £696	<hr/> 0	<hr/> 10
<hr/>				

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No. 4a

Powder Account

	Cost per ton	£ s d
To 19 tons transferred from Carbonate of Magnesia Account	278/5	264 9 11
“ Wages—Crushing	7/2	6 16 2
“ Sifting	1/3	1 3 9
“ Packing	1/5	1 6 11
“ Departmental Expenses	14/-	13 6 0
“ Electric Power	14/8	13 18 8
“ Repairs	1/8	1 11 8
	318/7	£302 13 1
		£ s d
By Finished Stock of Powdered Carbonate of Magnesia, 18¾ tons		298 13 5
“ Waste, ¼ ton		3 19 8
		£302 13 1

Account No. 4a deals with the powder and consists of the following debits:—

Materials.—19 tons of carbonate of magnesia.

Wages.—Crushers, sifters and packers.

Departmental Expenses on similar lines to those debited to other processes.

The credits consist of:—18¾ tons of powdered magnesia transferred to finished stock, and ¼ ton of waste.

Here again in this process very little wastage occurs, but the figure is watched so that a check can be kept to prevent any undue rise.

Your attention should now be drawn to the important question of the allocation of the overhead expenses, and I would suggest that the various items should be dealt with in the following manner:—

Repairs to Plant and Buildings should be charged direct to each department in accordance with the work done. For the purpose of keeping adequate control over the cost of repairs, each separate item of plant used in each process is allocated a separate repair number.

The various buildings each have a special repair number.

Salaries of Managers and Officials.—These should be allocated at the commencement of each year, the remuneration of the departmental managers being debited to the particular departments of which they are in charge, and other managerial salaries on an arbitrary basis, approximating to the amount of time devoted to the various departments.

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Unproductive Wages of foremen are debited to each department in accordance with the time spent.

Works office, cleaners, and cloakroom attendants—to each department according to tonnage of output.

Laboratory Salaries and Expenses.—These should be charged to each department as per work done and as certified by the chief chemist. Whilst ordinary routine work is dealt with in this manner it is customary to debit the cost of research work to a special account and sometimes in the case of projected new products, the sale of which is not likely to commence during the operations of the current financial year, it is found good policy to debit the expense incurred to a suspense account. The cost of such research work would then fall as a debit in the same year's profit and loss account, as that in which the credits from the sales of the particular product are first brought in.

Rents and Rates and Fire Insurance on Buildings should be apportioned *pro rata* to the floor space of the departments.

Fire Insurance on Stocks can be spread over the departments in accordance with the average values of the goods in stock.

Workmen's Compensation Insurance may be calculated on total departmental wages or on the number of men employed.

Travelling Expenses should be charged to each department on a basis of sales tonnage and *not* on the sterling value of sales.

Carriage Accounts should be analysed down to the smallest detail and inward charges debited to raw materials, and outward charges to the departments concerned according to the sales.

Depreciation

Depreciation on Buildings, Plant and Machinery is a departmental charge, and in this connection may I point out the wisdom of **keeping** proper plant and machinery records in which full particulars are shown of all depreciation amounts written off.

It should, of course, be understood that these items do not by any means exhaust the whole of the charges which are included in overheads but they represent sufficient to give some idea as to how expenses are allocated.

The accounts, examples of which have been given, also represent only a skeleton of the items chargeable, but are sufficient to show the method of procedure in the extraction of process costs.

The question of distribution of oncosts must be considered in relation to the problems met with in each particular business, and a certain amount of approximation is inevitable.

It is a sound policy that whenever practicable as many items of oncost expense as possible should be charged direct to the various productive departments or processes. A method which is frequently followed is to debit such expenses as I have mentioned to the various de-

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might be termed administrative charges, *pro rata* to the total of those expenses which have already been allocated.

Materials

Materials.—Before passing on to another section of my subject, I would like to point out that it is of infinite assistance to keep the records relating to repairs materials distinct from those relating to raw materials for manufacturing, and for this purpose control accounts under the two different captions could be opened as this facilitates checking and also the agreement with the ledger accounts.

The same remark also applies to finished materials.

A code number should be given for every separate item of stores and finished stocks.

The Paramount card system is a most effective aid in analysing expenditure over the various cost accounts and facilitates the work of sorting.

Wages.—In reference to wages, it is not my intention to trouble you with an exhaustive résumé of how to deal with this point, but let me say that if you wish to prepare accurate detailed process costs it is necessary that you should analyse the wages under different operation numbers.

One of the best systems by which this can be done is to use punched cards. Every man enters up his time for each operation on a separate card. These are sorted out under the cost account operation numbers and the labour cost is tabulated by means of a machine.

Let us now pass on to the consideration of the various service accounts.

Steam

Steam Generation.—The first of these is the boiler group. As already seen, the process accounts are debited with their proportion of the cost of steam generation. The only safe way to ensure that each department gets its correct allocation under this heading is to install departmental meters and charge out in accordance with the readings shown thereon. The amount charged per 1,000 gallons of water converted into steam is fixed for one year ahead based on the previous year's working.

Sometimes steam is charged out on potential consumption instead of on actual consumption, on the ground that the service is provided and is available whenever required.

Loco Haulage.—This item is for internal transfers of goods from one department to another and is based on the number of trucks hauled.

Motor Haulage.—This is treated as a selling expense and is calculated on the goods sold by each department on a ton mileage basis.

Packages.—This is a difficult point as so many factories vary their methods of dealing with packages. A common way is to treat it as a service department and charge each section of the works with the cost of boxes and other packages with which it has been supplied.

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Electric Power

Electric Power.—This should be debited to each department in accordance with meter readings.

The figures with which I have dealt throughout this lecture show the costs at the factory gate.

To fix the selling prices, sales overheads and administrative expenses should be added as a percentage based on the ratio which bears to the cost of manufacture.

An interesting statement is one which can be prepared showing the profit or loss on the sale of each commodity turned out in the factory, whereby the management is enabled to see which lines are the most profitable or otherwise. This assists in the formation of a basis for sales policy with regard to the different commodities.

Another interesting statement may be prepared showing "overhead recovery" whereby it can be seen from month to month to what extent overheads are being recovered.

Valuable information may also be compiled in the form of production records. The amount of liquor produced is known from the capacity of the tanks. The liquor charged to blocks is metered and the definite quantity is therefore known.

The production of carbonate of magnesia is measured by taking the aggregate of each of the different packages filled at the filling plant day by day. This figure is considered satisfactory although it is not always strictly accurate, as the whole of the process is more or less continuous, although, of course, breakdowns do occur now and again necessitating certain adjustments in the calculations.

The production figures are made up daily and the accuracy of these is certified by the departmental manager.

I am afraid that my time has almost gone, but before concluding I would like to say a word on "standard costs." This is a term as to the meaning of which there are many mistaken ideas, and it is quite common to hear the criticism that it consists of a most complicated system and that the cost of working it is out of all proportion to the benefits to be derived from its adoption. This misconception is a dangerous one, and it is disproved by the fact that standard costs are now being regularly used by a number of concerns and the results gained fully justify the expenditure entailed.

The processes are worked out on theoretical bases of 100 per cent. efficiency.

Allowances based on special conditions, and similar or previous experience, are confirmed by laboratory experiment as being practical, and standard yields and performances are thus set up and revised when necessary.

The process cost accounts are summarised and compared with standard process costs by stages and at regular intervals. Variations from standard are investigated, the method adopted being to work from

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"general to particular" when necessary, only on the short period comparisons, thereby reducing the amount of clerical labour. The long period comparisons are completely analysed to each heading of expenditure.

For efficiency comparison the results of the yield at each stage of the process are set out at the head of the process cost sheet.

Types of Statistics

Types of statistics vary but the following are suggestive of the idea sought:—

Data for comparison between Standard and Actual.

Quantities of materials used per unit of production.

Quantities of by-product obtained per unit of production.

Loss of material in process per unit of production.

Labour hours direct and indirect per unit of production.

The average purchase prices of materials.

The average wage rates paid.

Finally, let me sum up by saying that the following are the factors usually determining the adoption of process costing:—

- (1) Continuity of production and/or process.
- (2) Impracticability of measuring yields at frequent intervals.
- (3) Transformation of materials by stages.
- (4) By-product processing.
- (5) Difficulty in exactly determining the residual values of partly processed materials at different stages of production.

The following are the main weaknesses to be guarded against:—

- (1) Inconsistent or illogical allocation of expenditure to various stages of manufacture.
- (2) Inaccurate valuation of by-products.
- (3) Incomplete collection of expenditure in preparing by-products for sale.
- (4) The difficulty of cost comparison over short periods.

As practising accountants we should not hesitate to advise our clients whenever possible to adopt the best and most up-to-date methods of cost accounting. Nor should we be put off by those who argue that proper cost accounting is laborious and expensive and takes up too much time.

To refute this let me just quote one concrete example from the Midlands.

In an organisation in that district the complete costs of every department, and for every product and every job, are produced weekly by 5.30 p.m. on Monday afternoon for the week ending on the previous Saturday at 2 p.m. The monthly balance sheet, and profit and loss account, showing the profit on every product manufactured, are ready within ten hours of the end of the month or period, and this costing system through the application of standard costs on one operation alone has been the means of saving £30,000 a year.

Price Movements in 1936

(An analysis of commodity prices and related trends, prepared by
The Dominion Bureau of Statistics.)

AFTER remaining comparatively inactive during the first six months of 1936, international commodity markets moved upward in the second half of the year displaying a degree of strength much greater than in any preceding period of the recovery movement. This was particularly marked in countries of the former European gold 'bloc' that had abandoned gold parities late in September, but substantial increases were also recorded for the wholesale price levels of most other countries. Czechoslovakia was the one noteworthy exception to this statement. Improvement in the supply situation of many basic commodities along with more confident buying for industrial purposes furnished the main support to rising markets. There also were indications of increasing speculative activity in commodity exchanges as well as in stock exchanges, both of which recorded wide advances in most countries. Repercussions of commodity price rises may be observed from the following table showing international wholesale price movements between December 1935 and the latest month of 1936 for which data were available:

Percentage Change in Wholesale Price Levels, 1936

France	+26	Sweden	+ 5
Switzerland	+14	Norway	+ 5
Netherlands	+11	Belgium	+ 4
Australia	+ 9	United States	+ 2
United Kingdom	+ 8	Germany	+ 1
Canada	+ 6	New Zealand	+ 1
China (Shanghai)	+ 6	South Africa	+ 1
Japan	+ 6	Czechoslovakia	-15
Poland	+ 5		

Canadian Prices

The general level of wholesale prices in Canada advanced 9.6 p.c. during 1936. This was represented by a rise in the Dominion Bureau of Statistics wholesale price index number from 72.7 to 79.7, which compares with 63.5, the extreme low of the preceding decline reached in February 1933. The December 1936 wholesale price index was thus 25.5 p.c. above the depression nadir, and it is noteworthy that more than a third of subsequent recovery has come in the year just ended. Of even greater interest is the fact that the 1936 increase came almost entirely during the past six months after a period of two and one half years of exceptional stability. The 1936 advance has been very unevenly distributed as may be observed from the following percentages

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of increase for different commodity groups: Vegetable Products 28.0, Animal Products 1.8, Textiles 2.0, Wood Products 5.8, Iron and Its Products 4.9, Non-Ferrous Metals 17.8, Non-Metallic Minerals 0.5, Chemical Products 1.9, and Canadian Farm Products 29.6.

These widely differing rates of increase, however, have served to compensate for earlier uneven rates of decline, so that price relationships of significant commodity groups have been practically restored to pre-depression relative positions, although still averaging about 20 p.c. lower than 1928-29 levels. That is, commodity group price indexes now vary by only small amounts from the December 1936 general wholesale index of 79.7, whereas in February 1933 the differences were as much as 50 p.c. The net effect of recent changes has been to improve materially the purchasing power of the large numbers of primary producers who form a preponderant part of Canada's population. The gradual restoration of price relationships to pre-depression positions may be observed from the following table which shows various commodity group indexes expressed as a percentage of the general wholesale price level in specified periods.

	February 1933	December 1935	December 1936
General Wholesale Price Level	100.0	100.0	100.0
Producers' Goods	91.5	95.6	100.9
Consumers' Goods	108.2	102.3	96.5
Raw and Partly Manufactured			
Materials	79.7	92.7	99.5
Fully and Chiefly Manufactured			
Materials	105.2	100.4	97.0
Building Materials	117.6	114.6	110.4
Canadian Farm Products	67.6	90.1	103.4

As might be expected from the irregular rise in the price levels for commodity groups, there were wide divergencies in the behaviour of individual commodity prices. The sharpest advances occurred among primary products which showed small gains or losses during 1935. Thus the 1935 decline of 34 p.c. in oat prices was followed by a 1936 increase of 83 p.c. Other impressive gains were recorded for raw rubber, wheat, wool, pig lead and copper. Hides, tin, cotton, pig iron, and steel showed moderate improvement, while cattle, hogs, raw silk and raw sugar declined, in most cases by small amounts. Although speculative activity caused some anxiety in the closing months of the year, price increases generally were justified by improving demand and definite decreases in world supplies. This was particularly true of wheat, rubber, and the non-ferrous metals. The extent of 1936 price changes may be observed from the table following which shows percentage changes in Canadian wholesale prices between December 1935 and 1936 for more important basic commodities.

PRICE MOVEMENTS IN 1936

Percentage Change in Wholesale Prices of Important Commodities Between December 1935 and December 1936

Rye	+137	Hides and Skins	+ 22
Barley	+131	Lumber	+ 10
Oats	+ 83	Steel bars	+ 7
Rubber	+ 59	Raw cotton	+ 6
Wheat	+ 46	Pig Iron	+ 5
Pig lead	+ 34	Beef hides	+ 4
Flour	+ 32	Hogs	— 1
Wool	+ 32	Raw silk	— 3
Copper	+ 23	Cattle	— 10

Cost of Living, 1936

An upward tendency in foods, clothing, and rentals caused the Dominion Bureau of Statistics cost of living index for Canada to advance from 80.5 to 81.8 during 1936, a gain of 1.6 p.c. This represents a rise of less than 7 p.c. since the low point of the preceding recession which ended in June 1933, and compares with an increase in wholesale prices of over 25 p.c. for approximately the same period. Retail prices, of course, have not had time to become fully adjusted to the recent sharp advance in wholesale prices.

The food price index mounted 2.2 p.c. during 1936, supported by higher quotations for eggs, milk, cheese, bread, flour, rolled oats, tea and potatoes. The only large increase was for potatoes which had been unusually low in the preceding year. Price declines were registered by nearly all meats, as well as for lard, butter, sugar, and coffee. The food index in December 1936 was 75.3 p.c. of the average level in 1926. There was, however, a considerable range in the position of individual foods relative to 1926 average prices as may be observed from the following summary:

December 1936 Retail Food Prices as a Percentage of 1926 Averages

Less than 70 p.c. of 1926 averages—Veal, mutton, pork, bacon, lard, butter, coffee, potatoes.

From 70 p.c. to 79.9 p.c. —Beef, cheese, flour, rice, prunes, sugar, tea.

From 80 p.c. to 89.9 p.c. —Bread, beans, vinegar.

90 p.c. and over —Milk, eggs, rolled oats.

Compared with the 2.2 p.c. rise in food prices in 1936, there were increases of 2.8 p.c. in both clothing and rents, of 0.1 p.c. in the miscellaneous section, and a decline of 0.5 p.c. for fuels. Both coal and coke prices averaged ended the year fractionally lower than for December 1935, while changes in other fuels were of inconsiderable proportions. The advance in rents and clothing was somewhat greater than in 1935. Raw textile materials, particularly wool, were firm in price as the year ended. Decreases in theatre admissions, tobacco and periodical journal prices were slightly overbalanced by increases for household effects, furniture, health costs, and motor operating costs in the miscellaneous group.

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Security Prices, 1936

Security prices in nearly all fields registered sharp gains during 1936 despite corrective reactions in the spring months and again in November. The magnitude of net changes for the year in different sections of the market may be appreciated by references to the following group percentages of increase. Base metals 58 p.c., preferred stocks 26 p.c., utility common stocks 25 p.c., industrial common stocks 19 p.c., gold issues 12 p.c., and Dominion of Canada long-term bonds 5 p.c. The marked improvement in preferred stocks and utilities in contrast with their lethargic behaviour during the past few years was one of the outstanding developments of 1936.

The Bureau's index of industrial common stocks advanced sharply from 178.2 to 200.0 in January and February, with the latter month witnessing the heaviest trading in recent years. A minor reaction in March was followed by a second one of more importance in April which marked the first serious setback industrials had received since July 1934. The end of this movement came in May when the industrial group index averaged 187.9. During June and July recovery was hesitant, but in the next three months prices mounted rapidly, this advance being comparable to the sharp rise in the final quarter of 1935. Unlike that movement, however, its 1936 counterpart received a serious setback in the second and third weeks of November. The market immediately resumed its advance in December, showing much greater recuperative power than after the spring decline. The December average index of 212.8 compared with the high point for the year of 226.1, recorded for the second week of November.

Utility common stock prices followed the same general movements described above for industrials, except that the November reaction was slight and December recovery relatively stronger. The utility index mounted from 50.1 for December 1935 to 57.0 for February and then dropped back to 52.5 in May. Subsequent reactions were so small that each succeeding monthly index showed an increase, the final December number being 62.8. Were it not for the Transportation sub-group, the December Utility index would have been more than 20 points above its current level. This may be observed from the following Utility sub-group indexes for December: Transportation 34.6, Telephone and Telegraph 120.4, and Power and Traction 82.1.

Gold stock price movements appeared to anticipate those in other groups by several months. Thus their initial decline commenced late in January, while recovery was occurring during the April reaction in other sections. From mid-May until late in October golds declined gradually, then turned upward and continued to gain throughout the precipitous drop in industrials during November. The peaks and troughs of the year were marked as follows, January 124.8, February 130.2, March 122.7, October 126.4, and December 131.3.

Base metals gained more consistently than any other group, rising from 214.8 in January to 24.1 for April. Then after a minor de-

PRICE MOVEMENTS IN 1936

cline to 239.2, they advanced without interruption to 317.8 for December. Spectacular increases in base metal commodity prices, particularly in the final quarter, furnished considerable support for improvement in base metal stock prices. Gains of the latter, however, were approximately three times as great as those for commodity prices.

Dominion of Canada long-term maturities moved to all time high levels in the first three-quarters of 1936, on markets which were exceptionally steady. The gradual progress of the Bureau's Dominion long-term price index from 113.2 to 119.4 during this period was unbroken, save for a few short fractional reactions. The most serious of these came in April when the Province of Alberta defaulted on the principal of a small maturing issue and reduced interest payment on it from 6 p.c. to 3 p.c. Within the month, however, prices had fully recovered small losses occurring at that time. The strength of the market was tested at irregular intervals by Dominion financing which was mostly concerned with refunding. A good reception to the \$48,000,000 refunding issue floated in New York in January stimulated the home market. Oversubscription of a \$20,000,000 general purpose domestic loan and a successful refunding operation in excess of \$115,000,000 in June furnished further evidence of basic strength. The same favourable reception greeted the \$1000,000,000 issue on September 10, of which \$73,000,000 was for refunding.

The break-up of the European gold 'bloc' in the final week of September and the subsequent currency devaluations by France, the Netherlands, Switzerland, Italy, and Czechoslovakia were followed by moderate price declines which carried the Dominion index down from 119.4 at the middle of September to 116.6 for the final week of October. Gradual recovery in the last two months brought it back to 118.4 at the close of the year.

Foreign Exchange, 1936

Other exchange developments were overshadowed during 1936 by the struggle to preserve the gold parities of European gold 'bloc' currencies, the French franc, the Swiss franc, and the Dutch guilder. On September 25, the French Minister of Finance announced that the franc would be devalued, and the same action was taken in the next few days by the Netherlands, Switzerland, Italy, Czechoslovakia, and Roumania. The cooperation of central bank and Treasury authorities, particularly those of the United Kingdom, the United States, and France resulted in comparative stability being restored by the middle of October. A marked improvement in the Brazilian milreis and the Argentine peso also attracted considerable interest during 1936, as did the weak position of the Japanese yen as the year closed. Throughout 1936, New York funds at Montreal remained close to par, sometimes slightly above and sometimes a little below. Following devaluation of the franc, sterling rates at Montreal dropped about 14 cents to close the year at approximately \$4.90.

Consumer Co-operatives

(From The Index, published by The New York Trust Company)

WITH the investigation, by a special committee appointed by President Roosevelt, of the European cooperative movement, the American public has also suddenly become conscious of the growth of cooperatives in this country. It has especially evinced a deep interest in the development of consumer cooperatives, and scores of articles have appeared in as many periodicals discussing the growth of these associations in recent years and the present status of consumer co-operation in our national economy. As a result of these studies, it is being hailed both as a possible solution to certain of our economic ills, and viewed with alarm as constituting an imminent danger to the practical working out of the profit system embodied in capitalism.

The actual extent to which wholesale and retail trade in the United States is being diverted into cooperative channels cannot be gauged with complete accuracy. Many of the estimates of the volume of business handled by consumer cooperatives represent no more than outright guesses. One reasonable estimate for the volume handled in 1934, however, is \$365,000,000, with members of the cooperatives totaling 2,000,000, and it is further estimated that sales probably totaled \$400,000,000 in 1935. Of the 1934 total, according to the statement of W. I. Myers, Governor of the Farm Credit Administration, farmers' associations accounted for over \$250,000,000 through their cooperative purchases of feed, fertilizers, seed, petroleum products and other farm supplies.

These figures may be considered in two ways. They demonstrate the growth in the number and relative purchasing power of consumer cooperatives, which has been particularly marked in recent years, but they also indicate that, despite these gains, cooperatives still account for a very small proportion of our national wholesale and retail trade and will have to expand to a far greater extent before they can exert a pronounced influence upon our national economy as a whole. In contrast to their estimated business of \$365,000,000, in 1934, the combined net value of the country's wholesale and retail trade in 1933, the last year for which such a figure is available, aggregated approximately \$57,000,000,000. On this basis, cooperative purchasing, however important in some communities or in the distribution of certain commodities, amounts to little more than 0.6 per cent the national total of all wholesale and retail purchases.

Origin of Cooperatives

While the cooperative movement in this country has made no such headway as it has in several European countries, its origin may be traced almost as far back. Our first organized cooperative purchasing

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was not derived from the experience of the twenty-eight weavers in Rochdale, England, whose program, adopted ninety years ago, is the present bible of the cooperative movement, but from the needs of farmers during the middle of the past century. In 1858, a convention of Illinois farmers recommended the formation of farmers' clubs, among whose objects would be "the formation of wholesale purchasing and selling agencies in the great centers of commerce." While the momentum of this movement toward cooperative practices was dissipated by the Civil War, it furnished a start which was subsequently carried forward by the National Grange.

These early cooperative societies, however, were little more than clubs whose members pooled their buying power to obtain cash concessions for their combined cash trade, and they were gradually replaced by more formal organizations which took over certain of the Rochdale principles. As these cooperatives proved more and more successful, whereas the original Grange agency plan did not last very long, the Rochdale weavers have rightly been credited with founding the world cooperative movement and establishing a method for consumer purchases which today has international application.

The basic principles adopted by these famous weavers to solve their own purchasing problems were eightfold: their consumer cooperative would sell goods at prevailing local prices; a fixed rate of interest would be paid upon capital invested; profits,* after payment of all expenses including interest should be distributed in proportion to member purchases; no credit would be granted; both sexes were to have equality in membership rights; each member was to have just one vote; regular meetings of members were to be held, and accounts properly kept and audited.

"From this obscure and unassuming start," Bertram B. Fowler has written in 'Consumer Cooperation in America,' "the cooperative movement has spread over Great Britain until today it has reached the proportions of big business. The English Cooperative Wholesale is now England's largest single business concern in the domestic side of commerce. Under the two wholesales of England and Scotland is a network of over 2,000 retail societies, operating all manner of stores, taking care of milk distribution, setting up consumer standards of quality and purity. From retailing, the societies have moved forward to organize and control through their wholesale societies more than 150 factories and mills. . . . With a membership of over 7,000,000 the cooperative movement embraces more than half the families in England and Scotland."

Under the influence of various farm organizations, the formation of cooperatives in the United States followed a somewhat erratic—

* Defined by the cooperatives themselves as savings returned to the consumer and not profits—a distinction affecting the application of income taxes.

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and far less dramatic—course. During the last quarter of the past century and opening years of the present, cooperative marketing of farm produce became far more important than cooperative purchasing of supplies. While there were always some organizations primarily concerned with the latter operation, it was not really until after 1914 that consumer purchasing began to become an appreciable factor in farm economy. Thereafter, the increase in purchasing associations, largely operating upon the Rochdale principles, was rapid, gaining added momentum with the depression.

In 1915, there were estimated to be only 275 cooperative associations, with a membership of 59,503, whose primary business was purchasing supplies. Their total business was some \$11,677,000 or only about 1.8 per cent of the estimated business of all farmers' cooperative associations. Ten years later, however, the number of associations had swelled to 1,217. They had 247,000 members and a volume of business estimated at \$135,000,000, or 5.6 per cent of the total volume of all farm cooperatives' transactions.

Present Status

Further gains brought a threefold increase in membership and 40 per cent rise in the value of purchases by 1934-1935. In that year, the number of purchasing associations was 1,906 and their membership 790,000. The increase in their business to \$187,000,000 constituted 12.2 per cent of total estimated business for all farm organizations listed by the Farm Credit Administration.

Farmers' Purchasing Associations

Year	Associations		Estimated Membership	
	Percentage		Percentage	
	Purchasing Number	Purchasing(1) Per cent	Purchasing Number	Purchasing(2) Per cent
1913	111	3.6
1915	275	5.1	59,503	9.1
1921	898	12.2
1925-26	1,217	11.3	247,000	9.1
1927-28	1,205	10.6	398,000	13.3
1929-30	1,454	12.1	470,000	15.2
1930-31	1,588	13.3	392,000	13.1
1931-32	1,645	13.8	533,000	16.7
1932-33	1,648	15.0	542,700	18.1
1933-34	1,848	17.0	692,000	21.9
1934-35	1,906	17.8	790,000	24.1

(1) Percentage of all marketing and purchasing associations listed by Farm Credit Administration.

(2) Percentage of total estimated membership for all associations listed.

Source: Farm Credit Administration.

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"In addition to cooperative buying by associations set up for that specific purpose," states a report of the Farm Credit Administration, "approximately 40 per cent of the marketing associations are engaged in buying supplies for their farmer members. Considerable quantities of fertilizer, dairy and poultry feeds, seeds, containers, coal, and petroleum products are purchased. It is estimated that this side-line activity amounted to \$90,000,000 during 1934-35. The sum total of cooperative purchasing by farmers through marketing and purchasing associations is estimated at more than \$250,000,000."

The greatest number of purchasing cooperatives are found in the north central part of the country, more than 60 per cent of these associations, transacting about half the national total of cooperative farm buying, being situated in twelve states in this area. Ranked according to membership, the leading states, in 1934-35, were Minnesota, Illinois, Indiana, Massachusetts, Wisconsin, Iowa and Nebraska. New York led all others in the value of supplies purchased, followed by Massachusetts, Minnesota and California.

In the past few years, the movement has embraced many organizations other than farm cooperatives and has made considerable headway in urban centers and among special groups of professional workers and wage earners. While comparable statistics are not available on these cooperatives, the rapid growth in membership and purchases of many individual organizations attest the growing popularity of consumer cooperatives throughout the country. The farm cooperative remains the back bone of the movement, but in parts of the country it is expanding far beyond such limitations.

Method of Operation

The customary practice of consumer cooperatives is to organize on a small basis and then gradually expand as their services attract new members. Farmers have banded together to purchase such supplies as dairy and poultry feeds, fertilizer, seeds, shipping containers, spray material, binder wire and other farm supplies; urban consumers for the purchase of groceries and household articles. One of the most dramatic developments in cooperative purchasing, which started only in 1921, has been in the purchase of gasoline and oil. Between a third and a fourth of the buying associations, it is reported by the Farm Credit Administration, are primarily engaged in the distribution of petroleum products.

The objectives of these cooperatives, generally speaking, has been to purchase from whatever source was most economical and then to sell their seed, gasoline, groceries or other supplies through their own stores, both to members and other customers, at prevailing prices, or, in some cases, at cost plus to members. Through efficient management, such profits as would ordinarily accrue to the privately operating middleman would then supposedly be available for members and would

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be distributed, after deduction of all expenses and the setting aside of necessary reserves, as patronage dividends based on the volume of the member's own purchases through the year. The essential difference between the cooperative and the more usual form of business enterprise is that, in the former, the capital necessary to conduct operations is supplied solely by the consumers and the rate of profit on the investment is restricted, while, in the latter, no such limitations exist.

The efforts of retail consumer cooperatives to effect economies in the purchase of supplies have in many instances led to the formation of wholesale cooperatives. They may purchase in huge bulk and distribute to a wide number of retail outlets. This in turn has forced the wholesale cooperatives to expand their functions, warehousing their goods, undertaking certain phases of processing, and even manufacturing. Oil blending plants, feed manufactures, fertilizer plants stand out among such undertakings. In a number of cases, the cooperatives take over all or the greater part of some manufacturers output on special terms and market under their own trade names—Co-op automobile tires and accessories, farm machinery, groceries. Through this control of production, their aim is not only to achieve lower costs but also to obtain products conforming to special requirements and thus, theoretically, manufactured under consumer supervision.

Specific Examples

How these cooperatives function and have expanded in recent years, however, may best be illustrated by some specific examples.

In Rochester, Minnesota, a cooperative was organized in 1930 to deal in oil and gasoline and in its first year of operation it did a business amounting to \$60,000. Four years later, this figure had increased to \$350,000, and it paid back to its consumer members a total of \$25,000 in patronage dividends. Similarly, a gasoline station was organized in Madison, Wisconsin, with about 300 members, which, in the first eight months of 1934, did a business of \$18,000. As the membership has gradually grown to 1,300, it has branched out, taking over two more gasoline stations, a bulk plant and a coal yard. Almost immediately getting on a paying basis, this cooperative has been doing business during the current year at the rate of \$3,000 a week.

Among the wholesale cooperatives, expansion has also been dramatic. The Eastern States Farmers Exchange of Springfield, Massachusetts, was organized in 1918 and has had a steady growth until it now has a membership in New England, Pennsylvania and other Middle Atlantic States of more than 50,000. Annual purchases are made of more than 300,000 tons of feed, fertilizer and miscellaneous supplies valued at \$12,000,000. Warehouses are situated at strategic points; a large feed mill is operated in Buffalo and fertilizer plants in Boston

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and Wilmington, and the Exchange performs all the distributing functions, including the processing of raw material. The cooperative has an equity of more than \$1,500,000 in plants, inventory and other assets, and, in 1934, distributed patronage dividends amounting to about \$100,000.

The largest farmers' cooperative purchasing association is the Cooperative Grange League Federation Exchange, Inc., of Ithaca, New York, organized in 1920. For two years, it operated at a loss, piling up a deficit of \$150,000, but since its reorganization in 1922, its success has been very marked. In 1934, it served 100,000 customers and, during the year ending June 30, 1935, distributed feed, seed, fertilizer and other supplies with a wholesale value of \$24,000,000. It operates approximately 135 stores and also has some 500 accredited local dealers.

In 1927, the Midland Cooperative Wholesale, domiciled in Minneapolis, Minnesota, has sales amounting to \$269,863 and patronage refunds totalled \$3,436; in 1934, sale had expanded to \$1,751,000 and refunds to \$44,799. Between 1917 and 1934, the Central Cooperative Wholesale of Superior, Wisconsin, dealing in groceries and general supplies, increased its annual sales from \$25,574 to \$1,787,556 while its net worth expanded from \$748 to \$208,922. The Consumers Cooperative Association of North Kansas City had an operating profit of \$103,838, in 1935, as compared with \$5,279, in 1929, while patronage refunds totalled \$31,680, or more than ten times the earlier figure of \$3,049.

While these accounts of growth and expansion indicate how strongly the cooperative idea has taken hold in individual cases, an attempt to give the movement a greater national significance is being made through the activities of the Cooperative League of the U. S. A., with headquarters in New York City and National Cooperatives, Inc., whose national headquarters are to be located in Chicago. Under their aegis, the large wholesale cooperatives are branching out and centralized purchasing and the manufacture of Co-op tires, lubricants, batteries, groceries and other products is providing the consumer members of the retail cooperative with more and more good. In 1934, Bertram B. Fowler states, National Cooperatives represented a market for 150,000,000 gallons of gasoline, running up total sales of \$40,000,000 with savings of \$4,000,000.

These examples of the growth of the cooperative movement are derived from those organizations which have proved successful. Many other could be cited where mismanagement, the intrusion of political influence, or lack of response upon the consumers' part because there was no real need for a cooperative, have resulted in the abandonment of the enterprise. Consumer cooperatives are no more proof against failure than traditionally organized wholesale and retail establishments. Like any other business, they should stand or fall in a free or at least equal competitive market.

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While not normally included in discussions of cooperatives, mutual savings banks and mutual insurance companies are organized on a comparable basis and are noted for their fine records extending over many years. In the case of mutual insurance companies, where stock companies have been permitted a virtual equality of competition under the law, the rivalry of the two forms of organizations has been mutually beneficial.

Conclusion

The formation of consumer cooperatives has been greatly encouraged in recent years through the aid afforded to the cooperative purchasing of farm supplies by the Farm Credit Administration. Privileges formerly accorded primarily to marketing cooperatives are now also extended to purchasing cooperatives, and the facilities of the twelve regional banks for cooperatives, set up under the Farm Credit Administration, are available for organization loans. There has also been a vast amount of literature published upon procedure and management, while the dispatch abroad of a commission of study attests the Administration's growing interest in this form of organization.

Such assistance to cooperatives by the Federal Government may be justified so long as it is held within reasonable bounds but it runs the risk, in respect to the best interests of the cooperative movement, itself, as well as in respect to private trade, of giving them an artificial advantage over other business enterprises which would promote an expansion their services to certain groups of consumers would not otherwise warrant. To subsidize cooperatives would be to compel the taxpayer to make up an illusory saving enjoyed by a special group of consumers. If they cannot stand on their own feet, effecting economies for their members which could not be gained in any other way, they would serve no useful purpose. Government aid would also tend to make the whole movement a political football, and create new difficulties in the development of a system of national distribution which must be based on the working of economic and not political laws.

The continued growth of consumer cooperatives and the mounting evidence of Government interest in the movement, in any event, have raised many questions as to their role in our national economy.

It is widely felt that in certain fields they are cutting into the normal business of privately owned enterprises, but other instances are often cited where the cooperatives have actually served as a healthy spur to capitalist business which needed fresh competition. It is generally agreed, however, that where cooperatives have been organized, neither price wars nor attempts to cut off their supplies have solved the problems their operations may have created.

While consumer cooperatives offer certain potential advantages over the traditional competitive system generally prevailing in the

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United States; that is, in respect to the immediate economies they may make possible in distribution, they also have distinct disadvantages when our national economy, as a whole, is considered. By avoiding much of the inertia inherent in widespread control, the older competitive system has an elasticity which the cooperatives would appear to lack, and throughout our history it has brought about a continuous expansion of markets which has made possible a mass distribution of goods serving to raise the standard of living and encourage economic progress. A danger in over-development of consumer cooperatives would be that without the spur of competition in the distribution of goods, the supply of manufactured products in many fields would be stabilized at prevailing levels and the introduction of new goods would be greatly impeded, both through the tendency to control sources of manufacture and through a progressive reduction in the force of the economic incentive to market innovations. Competition makes for improving standards of quality and a healthy growth while the cooperative system on a broad scale might well perpetuate the distributive status quo and to that extent act as a brake on industrial and social advancement.

"It has yet to be shown," J. B. Matthews wrote in an article on cooperatives in the current issue of the *Atlantic Monthly* "that appropriate qualities in consumers' goods prevail in any system where consumer choice is not entirely free, or in other words where producers and distributors are not compelled to compete for consumer patronage by some degree of appeal to quality. Any kind of monopoly which tends to throttle consumer choice or limits it to a single product of a given line of goods is destructive of the necessary motive for production of high and continuously improving quality."

While it would appear extremely unlikely that consumer cooperatives will experience in the immediate future anything like the expansion their more enthusiastic adherents predict, further growth would appear assured. Their present share of wholesale and retail trade may very well increase, not to an extent where it will represent any great proportion of the nation-wide total, but to a degree where in certain parts of the country, and in certain lines of goods, it becomes increasingly important to manufacturer, distributor and consumer.

Whether or not consumer cooperation will always be held back in this country by natural limitations, involving both the difficulties of mass production and the temperament of the American people, or whether the United States stands on the threshold of a more intensive cooperative development comparable to that experienced in Europe, must remain a question to which the future alone holds the key. Nevertheless, fairly to test the merits of the cooperative movement as compared to traditional business, there must be no kind of subsidy or legal advantage. Only thus will the movement attain its true stature and the best interests of all the people be served.

Budgetary Control

(An article on the above subject by A. V. Madge, of Crawley & McCracken, Ltd., of Montreal, and an active member and director of Montreal Chapter of this Society, recently appeared in *The Corporate Accountant*, and was summarized in *The Accountants' Digest* as reproduced below).

WITH the large volume of business and the complex organisation of the industrial unit today, it is impracticable to depend upon plans being carried around in someone's head. The field of the budgetary accountant includes the gathering of information from recorded results of past operations and formulating, on this basis, plans for the future.

Regardless of the length of the budget period, budgets should be scheduled to show monthly expectancies so that comparisons can be made between estimated and actual results. The total length of the period depends upon length of accounting period; stability of the market; availability of reliable statistical data; methods of production and length of process; financial methods.

Data for sales, purchases, inventories, expenses, production costs, cash, and for all other accounts employed in a modern accounting system may be budgeted.

The minimum profit deemed essential is based on the following considerations:

A. Profit from the point of view of economic conditions:

- (1) Minimum return on investment at rate of interest obtainable from good marketable securities.
- (2) Additional return to provide against hazards and provide for growth.

B. Profit from point of view of financing the business:

- (1) Interest to be paid on borrowed capital.
- (2) Dividends which the stockholders may reasonably expect.
- (3) Profits necessary to provide increased working capital.
- (4) Profits to cover increased cost of future asset replacements and to provide for future expansion.

The sales budget is usually the key item upon which the estimates for other departments are formulated. When preparing the sales budget consideration is given to (1) possible market requirements, (2) sales expectancies or sales deemed possible, (3) possibility of profitably satisfying the estimated demand, and (4) ability of the organisation to produce the goods required by the sales programme—buying, warehousing, manufacturing, selling, financing, etc. The form

BUDGETARY CONTROL

employed for this budget should fit the needs of the executives. In addition to estimated and actual results it may classify sales by commodity, or department; districts; branches, territories; salesmen; customers.

A selling expense budget which may be a part of the sales budget, includes salesmen's salaries, commissions, expenses; sales office expenses; advertising; packing or shipping, or other marketing expenses. A selling expense budget is of value which shows average sales and expenses for a certain period, estimated and actual selling expense, and percentage to net sales for each expense item under these three classifications.

For a production budget the following points must be studied in view of anticipated sales: (1) Maximum capacity of plant; (2) minimum volumes of production for economical and efficient operation; (3) maintenance of reasonably steady production so as to minimize labour turnover and avoid fluctuation in operations; (4) facilities required for scheduling production to cover anticipated sales. Based upon the requirements of the sales budget, the production budget considers the ability of the production department to meet the requirements as to the number of units, cost of direct material, cost of direct labour, indirect charges of burden, total cost of producing units required. The budget form should provide for estimated and actual

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total and unit costs, with comparisons between standard, estimated and actual unit costs for each classification of the production cost.

The routine generally followed in the inventory or materials budget is to deduct the estimated sales, at cost, from the beginning inventory. The figure remaining is deducted from the desired period end inventory, leaving an "open to buy" figure. The purchasing department, with its knowledge of the quantities of materials required and the dates they must be available and knowing unit prices, is in a position to submit (and interpret for the cash budget) its estimate of the cost of materials required for the period. Columns should be provided on the form for estimated and actual inventories, estimated and actual sales or stock withdrawals, and estimated and actual expenses incurred in handling of materials. Columns showing standard, estimated, an actual ratios of business to the inventory and expense percentages should assist in the controlling of these factors.

Inventories will vary according to the rate of stock turnover. Certain principles should be followed. These are the use of past record of inventories as a guide, check-over of previous buying policies, analysis of past year's inventory allowances. Inventory control assists as much in *when* to buy as how much to buy. Relative figures on production, consumption, and stocks on hand, as to specific commodities, will be essential in estimating price directions. Determining manufacturing supplies necessary, all departments of the business must cooperate.

Certain general factors face the accountant in preparing an inventory budget. Marked price fluctuations may lead to consideration of substitute items. Short term budgets are valuable in unsettled industry conditions. Minimum and maximum figures—instead of a single rigid one—may be established when budgeting inventory to permit leeway for quickly changing conditions.

Simplicity, clarity, flexibility and sensitivity are qualities every budget should possess. Up-to-the-minute, accurate knowledge of specific conditions is necessary to proper provision for inventories. Adequate accounting methods must be used.

The expense budget form should have columns for estimated and actual expenses, and others recording percentage to revenue for each estimated and actual expense classification.

The master budget is merely the summarising of the various departmental budgets. The most practical manner of preparing this is in the profit and loss statement form. It is of most value if columns are provided for estimated and actual figures and for comparative percentages to sales for each estimated and actual expense item.

Complete budgetary control requires an estimated balance sheet. Much has been accomplished in this direction through reserves for depreciation, depletion, bad debts, etc., which are merely estimates at

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best. Some executives fear that their freedom of action will be hampered by budgeting for the various classifications of the balance sheet. To gain co-operation in this direction one step at a time can be built to eventually prepare the estimated balance sheet.

If the person responsible for the actual results obtained in each department is responsible for preparation of estimates, the system will function more smoothly.

A manual of budgetary procedure is necessary, discussing responsibility for and date of preparation, number of copies required, desired information, its routing, and all other factors necessary for preparation of each department's budget, together with an explanation of the effect of the departmental budget upon the complete budgetary routine.

Essentials for proper budgeting may be summarised as follows:

1. Study of normal business growth, using average monthly and secular trends.
2. Forecasting of economic conditions a year in advance.
3. Finding deviation between a given business and general business conditions.
4. Tempering of growth with general business conditions.
5. Knowledge of potential market by product, district, trading area.
6. Elimination of waste in distribution by concentration on profitable areas and products.
7. Beating of depression by new products, advertising, increasing quotas in areas where potential market is under-absorbed.
8. Knowledge of seasonal trends by products.
9. Development of sales budget in both units and dollars.
10. Development of a stabilised production plan by units, tempered by stock conditions maintained to keep within sales estimates, so that labour may be more evenly employed.
11. Study of capacity absorption and consequent overhead. Knowledge of unabsorbed overhead may cause a company to produce standard items for stock rather than suffer loss.
12. Forecast of inventory increase or decrease from month to month on an annual basis, attempting to set goals which will result in an increased turnover of stock.
13. Establishment of standards of labour, tempered by most recent performance.
14. Careful gauging of materials, specifications, requirements purchases.
15. Control of overhead in accordance with volume, segregated between fixed charges, staff required, semi-variables, and variables.
16. Application of selling and advertising expenses to gross profit available in each class of product in order to maintain predetermined goal of net profit.
17. Breakdown of profit and loss statement in order to find and study items possibly causing losses, indicating percentages of loss,

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- percentage contribution to total sales, and percentage loss to total profit, or
18. Preparation of cash budget.

REFERENCE LITERATURE

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After Incentives—What? National Association of Cost Accountants, January 15.

Group Bonus Plan, A Practical. National Association of Cost Accountants, January.

Budgets, Advantages and Uses of. The Canadian Chartered Accountant, January.

Hospital Accounting—Departmental Analysis. Canadian Chartered Accountant, January.

Presentation and Interpretation of Costs. The Cost Accountant, December.

CHAPTER NOTES

TORONTO

Unfavorable weather held down the attendance at Toronto Chapter's meeting on January 20th, but those who were present showed their appreciation of the talk by R. F. Bruce Taylor, C.A., of Edwards, Morgan & Company, on "Why the Audit—What the Auditor Requires." Mr. Taylor is treasurer of the Chapter. His talk was followed by an active discussion. The entertainment arranged through Mr. Ausman also helped to make the evening a success.

The February meeting will be addressed by Mr. J. F. Gibson, of the Dominion Income Tax Office, Toronto. For March, a visit has been tentatively arranged to the plant of Viceroy Mfg. Co., Ltd., in place of the Canada Cycle and Motor Company Ltd., as originally scheduled.

